The missing link between financial incentives to work and employment (in Belgium for now)

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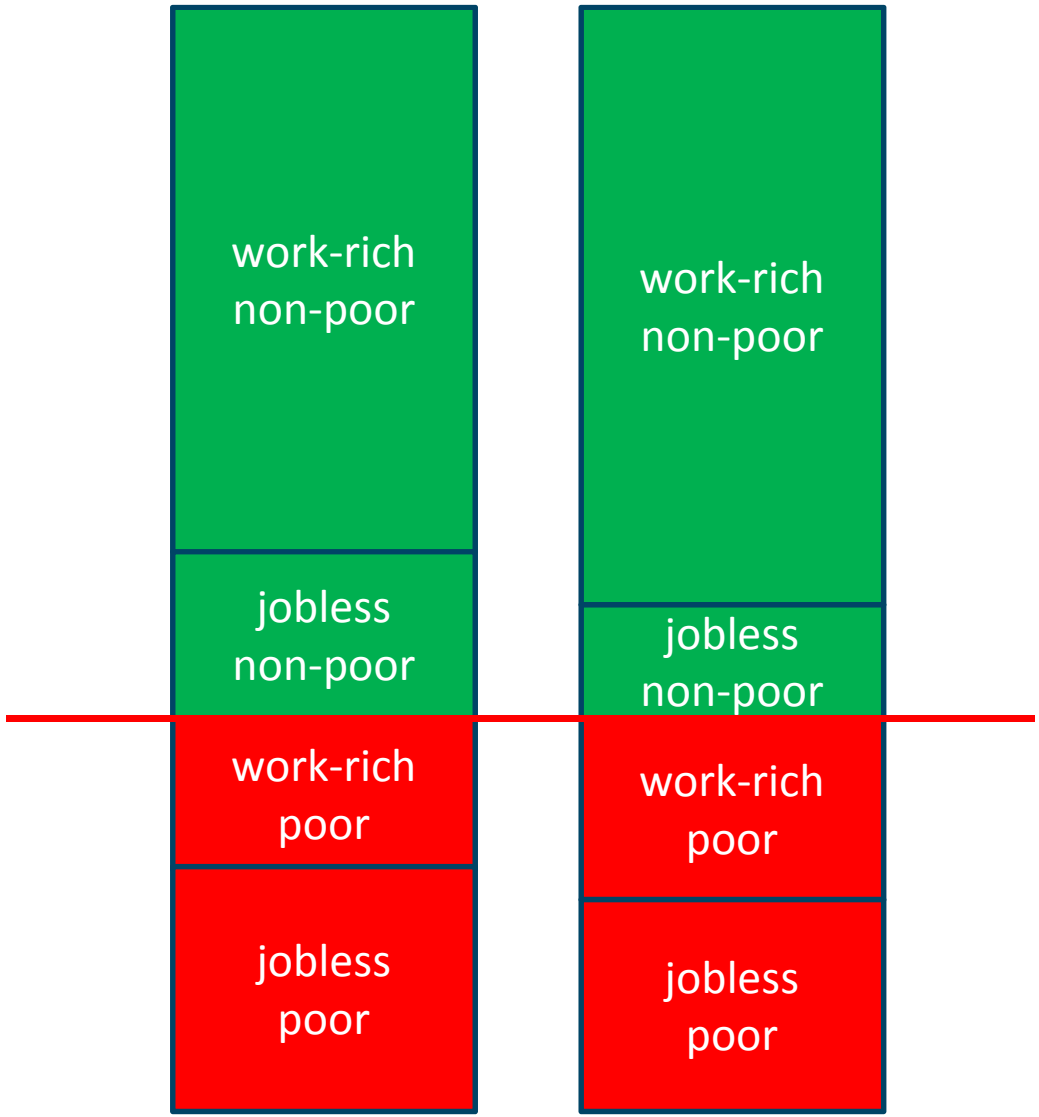
Introduction: pre-crisis context

- Atkinson (2009): much LM reform in EU sought to increase employment by reducing protection
- Cantillon et al. (2014): in many countries, rising inadequacy of protection for work-poor households (WP)
- Increasing gross-to-net efforts for low-wage workers (Immervoll, 2007; Marx et al., 2013)
- Corluy & Vandenbroucke's (2014) decomposition 04-07 (just kind of shift share so not causal):
  - 4 of 9 richest EU (BE DK FI UK): increased poverty for WP & work-rich counterbalanced by decreased share of WP (AT opposite counterbalance, DE SE even increase of WP share, FR stable and NL better but small changes)


work-rich
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work-rich
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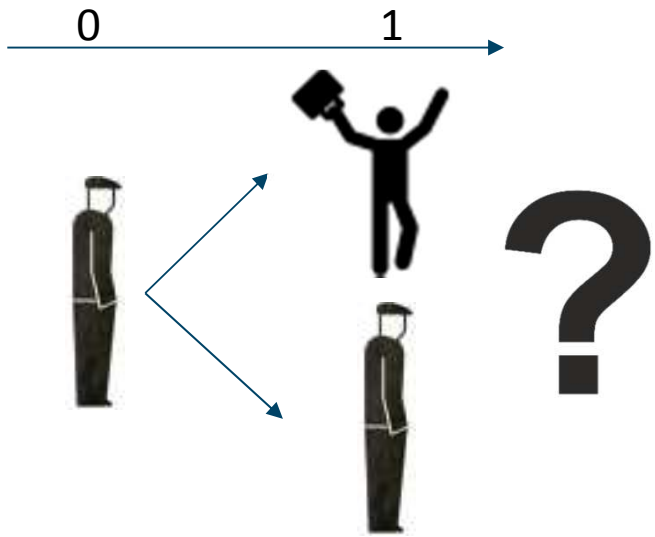
jobless
poor

Introduction: lack of causal analysis

- Cantillon & Vandenbroucke's (2014) conclusion:
  - Definition: "'low road' to employment creation, pushing […] into low-paid […] jobs or into inadequate benefit"
  - "increasing poverty for WP may signal […] 'low road' dominated"
- Bartels & Pestel (2016) for DE 1993-2010: increases in the difference between in- and out-of-work incomes, increased the likelihood of people taking up work
- Research question: Was this the case for unemployed people in other EU countries?



Methodology and data

A. Operationalising financial incentives to participate in the LM with Participation Tax Rates (PTRs)

B. Regressing prob. of taking up work on ΔPTRs over 2 consecutive years:

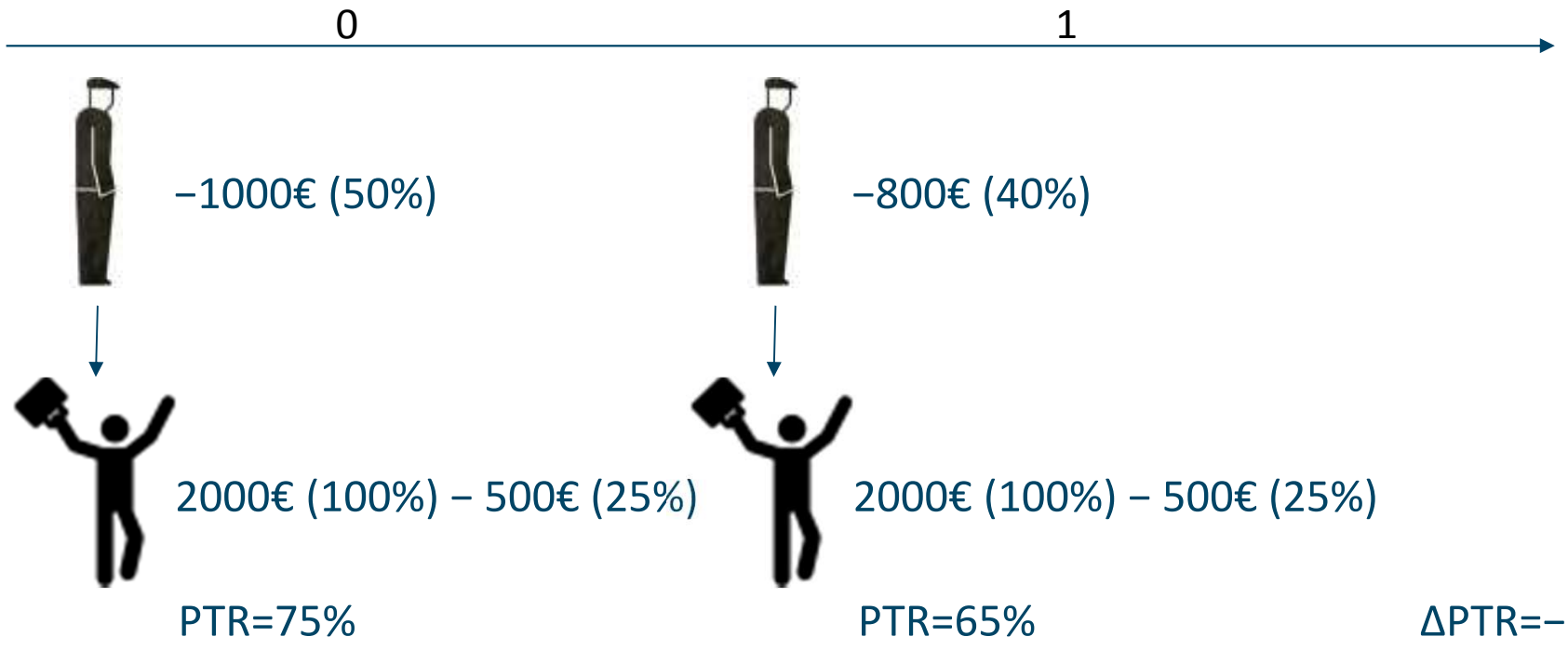
$$P(U_{it-1} \rightarrow E_{it}) = \Lambda(\gamma \Delta PTR_{it} + \mu_t + \boldsymbol{X'}_{itj}\boldsymbol{\beta}_j + \epsilon_{it})$$

- Data:
  - transitions 05-06, 06-07 & 07-08 in longitudinal EU-SILC
  - Incentives calculated with tax-benefit microsimulator model EUROMOD G3.0+ because they need counterfactual incomes (e.g. if I worked).
    - I mainly use observed UB and only simulate if not observed. Most people taking up work still have UB few months which I extrapolate. Simulations assume that spell started 1st year.
    - Subpopulation: individuals U=12 months, remaining U=12 or transitioning to E >= 6 months, couple or single headed households with somebody available for the LM (not self-employed, elderly, disabled, etc.)

A. Methodology: measuring incentives with participation tax rates (I)

E.g.: in year 0 gross wage 2000€ (100%), taxes 500€ (=25%) and UB 1000€ (=50%):

$$\text{PTR} = \frac{500€ + 1000€}{2000€} = 75\%$$



A. Methodology: measuring incentives with participation tax rates (II)

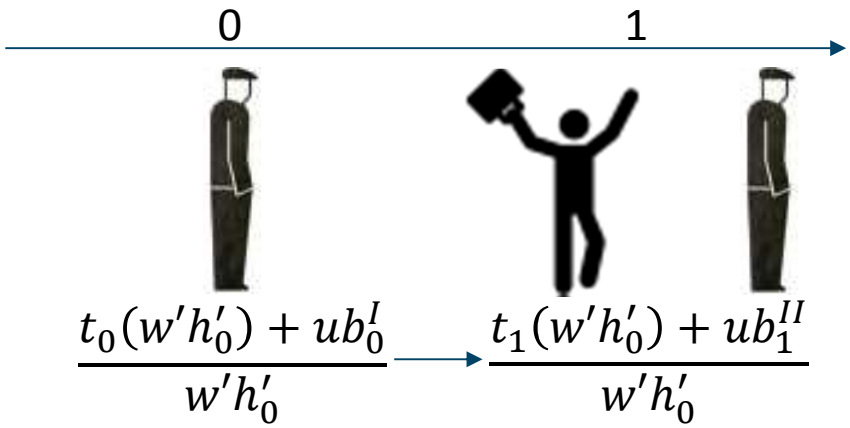
$$PTR_i = \frac{(hh\ (tax - ben)\ if\ i\ in\ work) + (hh\ (ben - tax)\ if\ i\ out\ of\ work)}{extra\ gross\ wage_i}$$

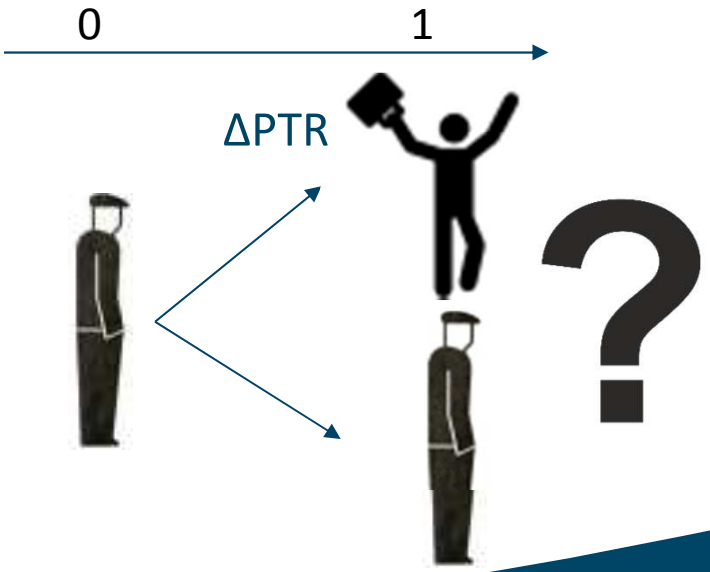
= proportion of household earnings taken in tax and withdrawn benefits when i moves from U to E (= 1 – [hh inc in – hh inc out]/ gross wage)

Heckman wage model - matching most likely hours – EUROMOD

- separately for partners

E.g.:





B. Methodology: Regression analysis

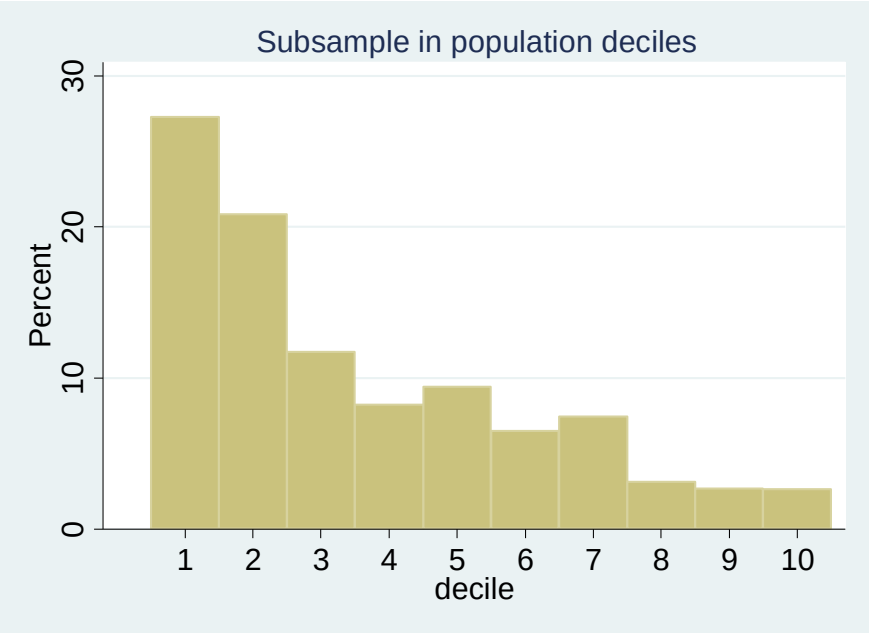
$$P(U_{it-1} \rightarrow E_{it}) = \Lambda(\gamma \Delta PTR_{it} + \mu_t + \boldsymbol{X'}_{itj}\boldsymbol{\beta}_j + \epsilon_{it})$$

Controls:

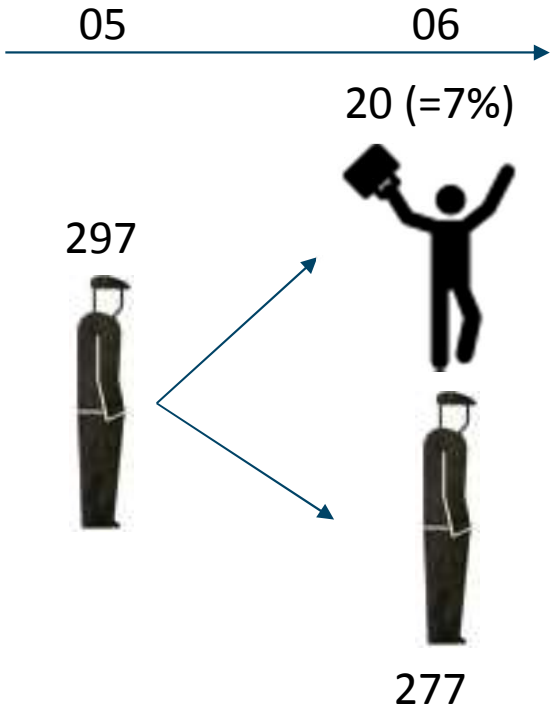
- μ_t controls for common changes (e.g. demand)
- Changes in:
  - Other eq. hh incomes (income effects)
  - Region-age-education-gender-specific employment
- First year:
  - PTR
  - Eq. hh income
  - Age
  - Gender
  - Education
  - Region-age-education-gender-specific employment
- We test ΔPTRs interacting with most first year variables

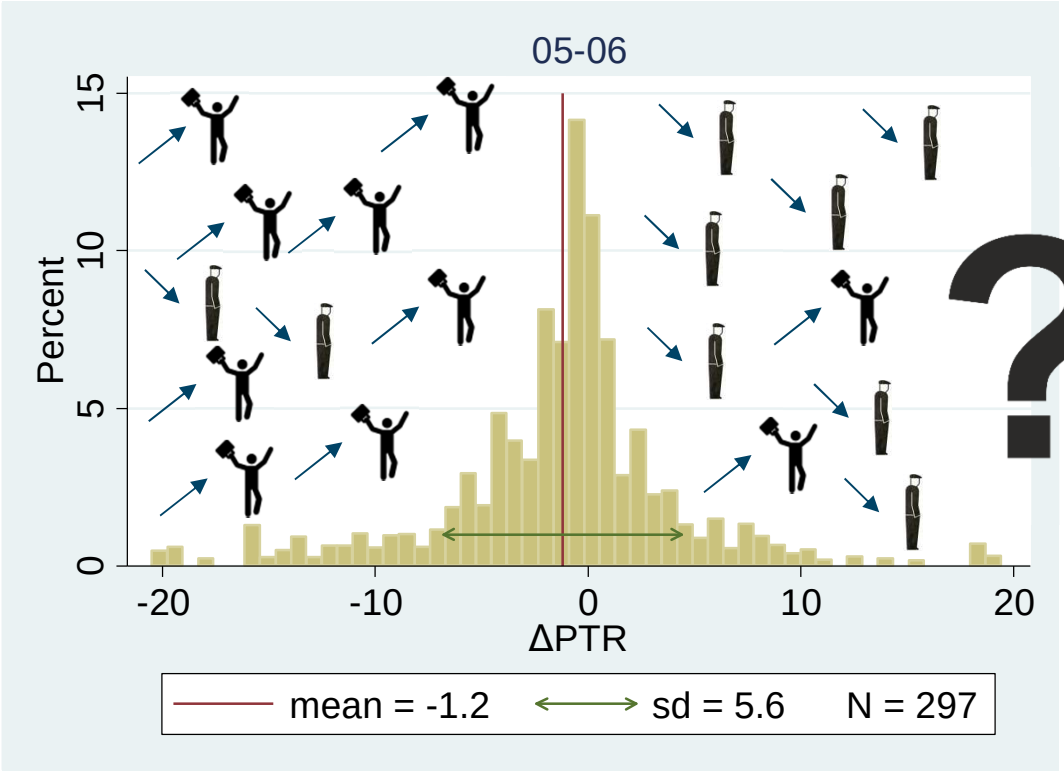
Results: descriptives 2005

- Population 2005 +- 10 millions (10000 obs)
- Our household types represent 80% of types
- Within those, 14% of available individuals were unemployed 12 months (+-450.000)
- Due to subsample (E>=6 months), attrition, non-simulation and 98% winsorisation of ΔPTRs, I deal with 8% (+-300 observations per year)
- 98% with UB as main out-of-work income
- We use observed UB 97% of the cases
- $\overline{PTR} = 73\%$



Results: descriptives 05-06





- Decomposition of mean:

in-work change=0.6 out-of-work change=-1.8

$$\overline{\Delta PTR} = \underbrace{\left[\frac{t_1(g'_{i,0}) + ub^{II}_{i,1}}{g'_{i,0}}\right]}_{\overline{PTR_1}} - \underbrace{\left[\frac{t_0(g'_{i,0}) + ub^{I}_{i,0}}{g'_{i,0}}\right]}_{\overline{PTR_0}} = \overline{\left[\frac{t_1(g'_{i,0}) - t_0(g'_{i,0})}{g'_{i,0}}\right]} + \overline{\left[\frac{ub^{II}_{i,1} - ub^{I}_{i,0}}{g'_{i,0}}\right]}$$

Results: descriptives

	05-06	06-07	07-08
Prob(U→E)	7%	8%	6%
$\overline{\Delta PTR}$	-1.2	-.1	.7
s.d.	5.6	5.1	6.4
$\overline{\Delta in}$	0.6	1.8	-3.2
$\overline{\Delta out}$	-1.8	-1.9	3.9
N	297	301	166

(selected) Average Marginal Effects

VARIABLES	(1) Prob(U->E)	(2) Prob(U->E)	(3) Prob(U->E)
PTR (10 pp) = D	-0.056***	-0.053***	-0.046***
		[-0.08,-0.02]	
Reg-edu-age-sex emp (10000) = D		-0.007	0.013*
Tertiary education = 1		0.084**	
Age = 1, 20-24		0.210	0.188
Age = 2, 55-64		-0.105***	-0.108***
PTR (10 pp) = L		-0.001	
Eq. household income (100) = L		-0.002	-0.001
N_sub	764	764	764

D=difference, L=lagged; *** p<0.01 ** p<0.05 * p<0.1;
standard errors take into account sample design

Preliminary conclusions

- Policy:
  - Before the crisis, the decreasing (mean) out-of-work component of PTRs tended to improve incentives over consecutive years (by design or policy change), while the in-work component to worsen them, specially in 06-07.
  - During the crisis this was strongly reverted.

- Main result in same direction as literature but larger and with some uncertainty
  - E.g. for DE Bartels & Pestel (2016): ΔPTRs of 10pp -> ≈ -1 pp effect on prob., while mine -5 pp with CI [-8, -2]

- Other cross-sectional results from literature (e.g. Bargain et al., 2014):
  - Also low income effect
  - But women and low income singles more responsive at extensive margin (while my interactions with ΔPTRs not s.s.)

Main limitations and next steps

- Financial incentives based on non-observed (latent) predicted incomes. But what else in non-experiment?
- Possibly part of U length effect picked up by ΔPTR effect: longer spells are already in flat part of UB, so shorter spells might have both larger decreases in PTR and more likelihood of taking up work
- Linear extrapolation of UB to 12 month in 2nd year (preferred compared to simulating without U history)
- Next steps:
  - Adding until 2010 to increase observations, policy change and changes in demand. Later other 2 countries
  - Check interactions
  - Summarising relevant policy changes
  - Effective Marginal Tax Rates (EMTR)

Thank you

Questions, comments and suggestions?

Data

- Longitudinal EU-SILC 07 & 08 merged with cross-sectional (I plan to add till 2013). As data is 4 year rotational panel, I use only last two years of each wave (+-75% of cross-section). Employment and income refer to previous year → transitions 05-06 & 06-07

- Incentives calculated with EUROMOD G3.0+ because they need counterfactual incomes (e.g. if I worked).
  - I create EUROMOD 'longitudinal' input files
  - I mainly use observed UB and only simulate them if not observed.
    - Most people taking up work still have UB few months which I extrapolate to 12 months
    - Simulations assume that spell started 1st year and in 2nd they use previous year info

- Subpopulation: individuals U=12 months, remaining U=12 or transitioning to E >= 6 months, couple or single headed households

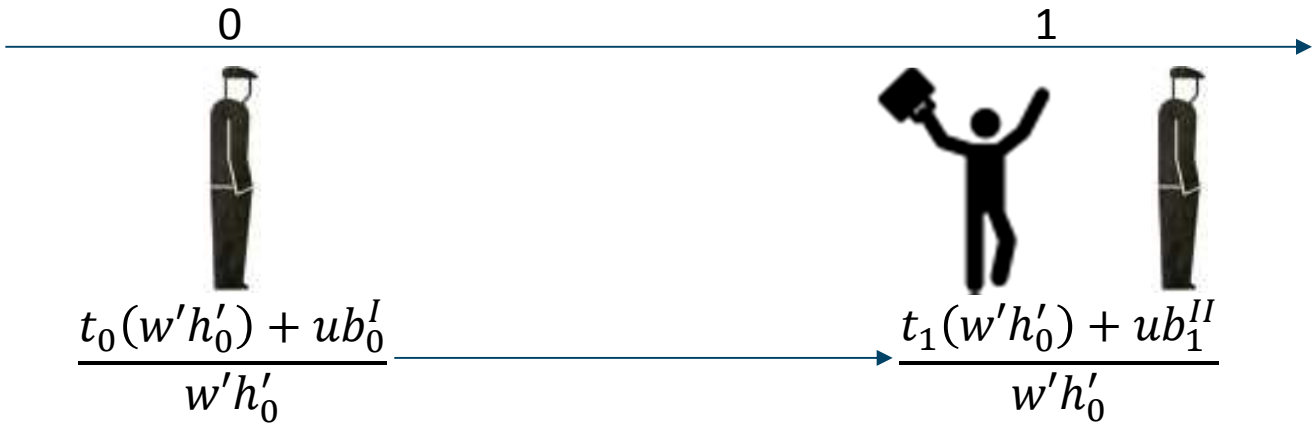
- Countries: ideally representing 3 welfare regimes
  - Now BE. Next NL and IE. Not possible Scandinavia and UK

A. Methodology: measuring incentives with participation tax rates (II)

Previous studies on “Employment = f(PTR) ”

- Bartels & Pestel (2016): 2 scenarios at 40 and 20 hrs.
- Kalíšková (2015): Heckman of earnings (=wage*hours) but we need hours e.g. for social contribution rebate (Work Bonus) based on FTE

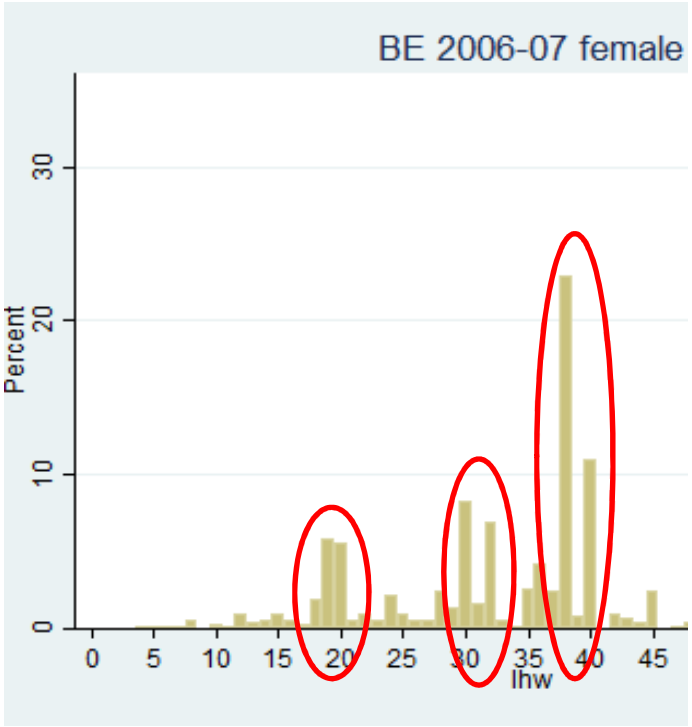
-> I predict wages and hours (1st year). E.g:

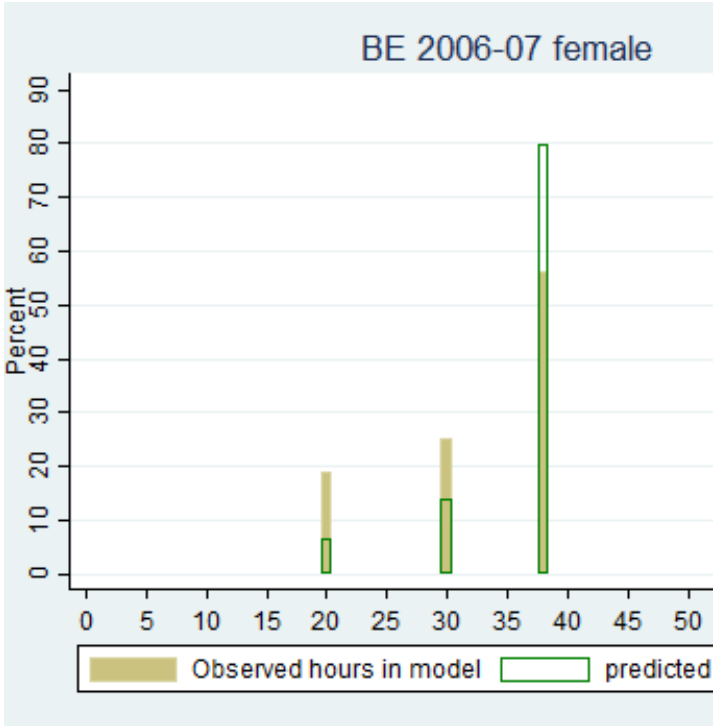


A. Methodology: measuring incentives with participation tax rates (III)

Matching most likely hours based on observables and highest predicted probability

- P(men [38,40]) > 50 % and for women:





$$PTR = \frac{t(wh) + ub(wh)}{wh} \approx \frac{t(w\cancel{1,1}h) + ub(w\cancel{1,1}h)}{w\cancel{1,1}h} \neq \frac{t(w2h) + ub(w2h)}{w2h}$$

B. Methodology: Regression analysis (I)

Sources of PTR variation (useful for identification)

- Changes in tax-ben policies: indexation or structural
  - e.g. UB min and max, replacement rates
  - Different across years and (perhaps) people
- Changes in other household characteristics (e.g. family composition, other incomes combined with progressivity, etc.)
- Different automatic decreases in UB according to U length

B. Methodology: Regression analysis (II)

Examples of policy changes:

- Social contribution rebate 05-06
  - Increase of base reduction from 120 to 140€/month
  - Low wage limit expanded from 1703€ to 2036€/month
  - Discount rate from 27 to 18%

- Unemployment benefit

2nd year UB rate for singles			
2007	2008	2010	2012
0,5	0,53	0,538	0,55

Results: Average Marginal Effects (05-06 & 06-07)

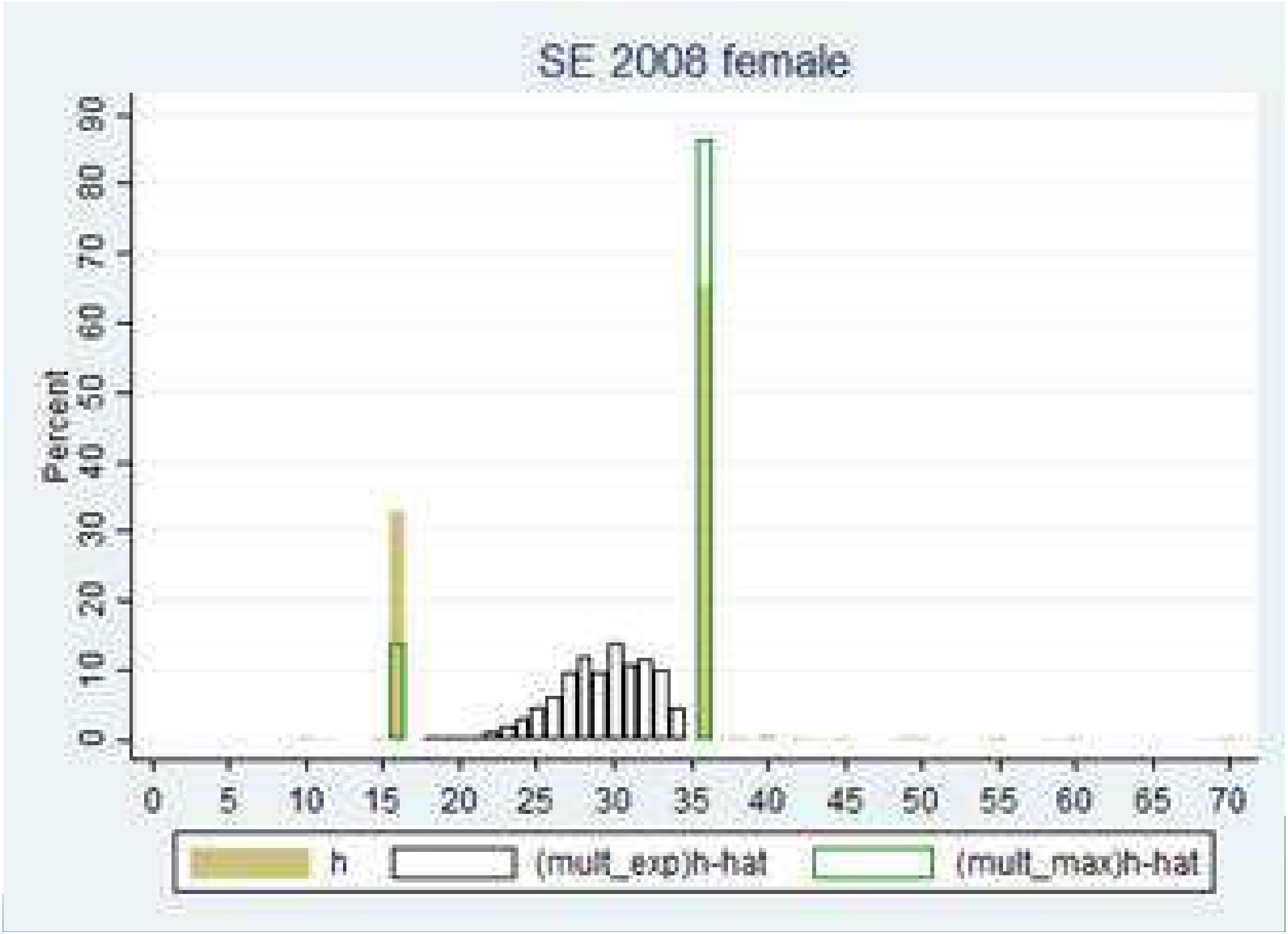
VARIABLES	(1) Prob(U->E)	(2) Prob(U->E)	(3) Prob(U->E)
PTR (10 pp) = D,	-0.052**	-0.056**	-0.046*
		[-0.103,-0.010]	
Other eq. incomes (100) = D,		0.014	0.013
Reg-edu-age-sex employment (10000) = D,		-0.004	0.011
Tertiary education = 1		0.116**	
Male = 1		-0.024	-0.023
Age = 1, 20-24		0.193	0.158
Age = 2, 55-64		-0.106***	-0.114***
Transition dummy 06-07 = 1	0.015	0.016	0.017
Years worked		0.002	-0.001
PTR (10 pp) = L,		-0.006	
Eq. household income (100) = L,		-0.004	-0.003
Reg-edu-age-sex employment (10000) = L,		0.001	0.002
N_sub	596	596	596

D=difference, L=lagged; *** p<0.01 ** p<0.05 * p<0.1; standard errors take into account sample design; not s.s. interactions between ΔPTR and Male, Age, Years worked, Eq. household income

Other limitations

- (for recipients) month in U = months in UB, and other caveats of using EU-SILC (instead of BE-SILC)
- Benefits in kind are not simulated (e.g. childcare might be more used when E and supply might have changed) nor U-E transition policies in cash.

- Larger PTR variation when using observed UB combined with non-related predicted earnings (not necessarily larger ΔPTRs)
- No error from predictions reduces variation in PTRs, although I study ΔPTRs and E people's variance is probably different than U's
- No seniority variable to predict earnings


SE 2008 female
Percent
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